IN THE CLAIMS

1-14. (cancelled)

15. (currently amended) A processing system for processing operations associated with thermal attributes, comprising:

a first operation having a first thermal attribute exceeding an operating threshold;

a second operation having a second thermal attribute not exceeding the operating threshold~~;~~ ~~—~~,

the first and second thermal attributes (TA) being determined according to the equation:

$$TA = k * (P/S)$$

in which P is power density of a component, S is the footprint of the component, and k is a thermal estimation constant; and

a processor for executing the first and second operations, the processor having a thermal threshold;

wherein, if the thermal threshold of the processor is not exceeded, the processor selects the first operation for processing, and

if the thermal threshold of the processor is exceeded, the processor selects the second operation for processing.

16. (original) The system of claim 15, wherein, if the thermal threshold is not exceeded, and if the first operation is not available, then the processor is operable to obtain and execute the second operation.

17. (original) The system of claim 16, wherein, if the second operation is not available, then the processor is operable to idle for a predetermined period of time.

18. (original) The system of claim 15, further comprising:

a plurality of priority queues, each of the priority queues including a first queue and a second queue, the first queues for storing the first operation and the second queues for storing the second operation.

19. (original) The system of claim 18, wherein a first one of the priority queues is a high priority queue, a second one of the priority queues is a medium priority queue, and a third one of the priority queues is a low priority queue.

20-36. (cancelled)

37. (currently amended) A processing apparatus for processing operations, comprising:

a first operation having a first thermal attribute not meeting a condition;

a second operation having a second thermal attribute meeting the condition,

the first and second thermal attributes (TA) being determined according to the equation:

$$TA = k * (P/S)$$

in which P is power density of a component, S is the footprint of the component, and k is a thermal estimation constant; and

a processor for executing the first and second operations, the processor comprising a processing element, a processing unit or a sub-processing unit and having a thermal threshold;

wherein, if the thermal threshold of the processor is not exceeded, the processor selects the first operation for processing, and

if the thermal threshold of the processor is exceeded, the processor selects the second operation for processing.

38. (original) The processing apparatus of claim 37, wherein, if the thermal threshold is not exceeded, and if the first operation is not available, then the processor is operable to obtain and execute the second operation.

39. (original) The processing apparatus of claim 38, wherein, if the second operation is not available, then the processor is operable to idle for a predetermined period of time.

40. (original) The processing apparatus of claim 37, further comprising a plurality of priority queues, each of the priority queues including a first queue and a second queue, the first queues for storing the first operation and the second queues for storing the second operation.

41. (original) The processing apparatus of claim 40, wherein a first one of the priority queues is a high priority queue, a second one of the priority queues is a medium priority queue, and a third one of the priority queues is a low priority queue.

42. (original) The processing apparatus of claim 37, wherein the processor comprises the sub-processing unit, and the sub-processing unit includes a floating point unit, an integer unit and a register associated with the floating point unit and the integer unit.

43. (original) The processing apparatus of claim 42, wherein the sub-processing unit further includes a local store.

44. (currently amended) The system of claim 15, wherein the ~~first and second thermal attributes are based on a~~ power density of the component is based on a power density of the processor.

45. (previously presented) The system of claim 44, wherein the processor includes a plurality of subcomponents, and the power density is based on a physically related group of the subcomponents.

46. (previously presented) The system of claim 44, wherein the processor includes a plurality of subcomponents, and the power density is based on a logically related group of the subcomponents.

47. (currently amended) The system of claim 15, wherein the first and second thermal attributes are further based on an amount of heat generated over a period of time by the processor.

48. (currently amended) The processing apparatus of claim 37, wherein the ~~first and second thermal attributes are based on a~~ power density of the component is based on a power density of the processor.

49. (currently amended) The processing apparatus of claim 37, wherein the first and second thermal attributes are further based on an amount of heat generated over a period of time by the processor.

50. (currently amended) The processing apparatus of claim 42, wherein the power density of the component is ~~first and second thermal attributes are~~ based on a ~~power density of the~~

~~processor, and the power density is based on a~~ physically related group of one or more of the floating point unit, the integer unit and the register of the processor.

51. (currently amended) The processing apparatus of claim 42, wherein the power density of the component ~~first and second thermal attributes are based on a power density of the processor, and the power density~~ is based on a logically related group of one or more of the floating point unit, the integer unit and the register of the processor.

52. (new) The system of claim 15, further comprising a compiler configured to manage component temperature, wherein:

the first and second thermal attributes each have one or more points associated therewith;

the component has a thermal index associated therewith, the thermal index identifying a number of thermal attribute points that the component dissipates as heat per clock cycle; and

the compiler is operable to predetermine whether the component will overheat when executing at least one of the first and second operations based on the number of thermal attribute points dissipatable per clock cycle in comparison to the thermal attribute points of the at least one first and second operations.

53. (new) The processing apparatus of claim 37, further comprising a compiler configured to manage component temperature, wherein:

the first and second thermal attributes each have one or more points associated therewith;

the component has a thermal index associated therewith, the thermal index identifying a number of thermal attribute points that the component dissipates as heat per clock cycle; and

the compiler is operable to predetermine whether the component will overheat when executing at least one of the first and second operations based on the number of thermal attribute points dissipatable per clock cycle in comparison to the thermal attribute points of the at least one first and second operations.